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Ross et al.

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(54) **SENSOR DEVICE AND METHOD FOR
MONITORING PHYSICAL STRESSES
PLACED ON A USER**

(75) Inventors: **Janice Marie Ross**, Mansfield, TX (US);
Johnny Ross, Jr., Mansfield, TX (US);
Jagdeepinder Singh Sanghera,
Midlothian, TX (US)

(73) Assignee: **Medhab, LLC**, Mansfield, TX (US)

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(51) **Int. Cl.**
G08B 23/00 (2006.01)

(52) **U.S. Cl.** **340/573.7; 340/573.1; 340/665;**
340/669; 600/592; 600/595; 600/587

(58) **Field of Classification Search** **340/573.1,**
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,042,504 A 8/1991 Huberti
5,107,854 A 4/1992 Knotts et al.
5,269,081 A 12/1993 Gray
5,323,650 A 6/1994 Fullen et al.

5,357,696 A 10/1994 Gray
5,373,651 A 12/1994 Wood
5,408,873 A 4/1995 Schmidt et al.
5,429,140 A 7/1995 Burdea et al.
5,452,269 A 9/1995 Cherdak
5,619,186 A * 4/1997 Schmidt et al. 340/573.1
5,661,916 A 9/1997 Huang
5,724,265 A 3/1998 Hutchings
5,815,954 A 10/1998 Huang
5,875,571 A 3/1999 Huang
5,905,209 A 5/1999 Oreper

(Continued)

FOREIGN PATENT DOCUMENTS

JP 2005224548 8/2005
JP 2010507398 3/2010

(Continued)

OTHER PUBLICATIONS

Author: Jan Brutovsky and Daniel Novak; Title: Low Cost Rehabili-
tation System for Post-operation Exercises; Date of publication: Aug.
30, 2006; <http://embc2006.njit.edu>.

(Continued)

Primary Examiner — Daniel Wu

Assistant Examiner — Son M Tang

(74) *Attorney, Agent, or Firm* — Eric Karich

(57) **ABSTRACT**

A sensor device has an insole, a sensor body abutting the insole, pressure sensors operably mounted on the sensor body for generating a pressure data signal, and an accelerometer mounted on the insole for generating a movement data signal indicating the measuring movement of the insole. A transmitter is used for transmitting the pressure data signal and the movement data signal to a reporting device having a receiver for receiving the pressure data signal and the movement data signal. The reporting device further has a processor and a computer-readable medium for storing the pressure data signal and the movement data signal.

18 Claims, 15 Drawing Sheets

